Appendix C

The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
250 Washington Street, Boston, MA 02108-4619

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May 2, 2000

The Honorable Barbara Dortch-Okara
Chief Justice for Administration and Management
Administration Office of the Trial Court
2 Center Plaza, 5th floor
Boston, MA 02108

Dear Judge Dortch-Okara:

In response to request from building occupants, two visits to assess indoor air quality were conducted at the Bristol County 3rd District Court, 75 North Sixth Street, New Bedford, MA. This assessment was conducted by the Massachusetts Department of Public Health (MDPH), Bureau of Environmental Health Assessment (BEHA). A number of complaints concerning indoor air quality were made by employees, including a persistent urine odor in the southern half of the building.

On March 22, 2000, a visit was made to this building by Michael Feeney, Chief of Emergency Response/Indoor Air Quality (ER/IAQ), BEHA. Subsequent to this visit, concerns about carbon monoxide levels within the Bristol County 3rd District Court were made to BEHA staff by building occupants. On March 29, 2000, Mr. Feeney returned to the building to conduct carbon monoxide testing. This letter details the results of carbon monoxide testing. Also noted are the conditions that may contribute to carbon monoxide penetration into the building. Findings concerning other indoor air quality related issues found during both inspections will be provided in a follow up report.

No detectable levels of carbon monoxide were measured during the March 29, 2000 assessment (see Table). While carbon monoxide was not detected during the visit, several conditions concerning the configuration/design of the building may provide conditions for carbon monoxide penetration into the building. During this assessment, the building furnaces were deactivated due to fair weather. The chimney for the furnaces extends above the surface of the roof at a height of three feet (see Picture 1). Northeast of the building is a fresh air intake for sections of the heating, ventilating, and air-conditioning (HVAC) system that services the southern section of the building. The top of this fresh air intake is ***five*** feet above the surface of the building. During weather with a southwest wind, furnace pollutants can travel from the chimney towards the HVAC system fresh air intake. Furnace pollutants (which may include

carbon monoxide) can be entrained into this vent and distributed into the occupied spaces of the southern section of the building.

Another possible source of carbon monoxide is the indoor garage located on the ground floor of the southern section of the building. This garage is used to deliver prisoners for trial. After the prisoner transport vans enter the garage, the garage door is closed by an automatic system. Several pathways exist for vehicle exhaust to penetrate into the occupied areas of the building. The ceiling of the garage has several spaces through the floor decking through which air may pass. Building occupants reported an incident involving the motor for the garage door opener burning out. Related odors were noted in the clerk magistrate's office. Since smoke involves heated particles rising, odors from this burnt out motor may have penetrated the area above the garage through these holes. Vehicle exhaust from the prisoner transport vans may also follow the same pathway.

The final possible pathway involves the building ventilation system. This building has two rooms in a penthouse/attic that contain the air handling units (AHUs). The southern attic room contains the AHUs that service courtroom 1, courtroom 3, the lock up area and adult clerk's office. The courthouse AHUs are equipped to provide air-conditioning during warm weather months. AHUs that provide air-conditioning require the installation of condensation drains to prevent water build up inside the casing and ductwork. The condensation drains for these units terminate above a floor drain that is connected to the building drainage system (see Picture 2).

Drains are usually designed with traps in order to prevent sewer odors/gases from penetrating into occupied spaces. When water enters a drain, the trap fills and forms a watertight seal. Without periodic input of water (e.g., every other day), traps can dry and compromise the integrity of the watertight seal. If traps dry out, odors or other material can travel up the drain and be distributed to occupied areas by the ventilation system. Both the floor drains and condensation drains have traps.

During this assessment, the AHUs were found to be drawing air through the condensation drains. This condition occurs because no water is produced by the AHUs during the heating season to create a watertight seal in the condensation drain. With each condensation drain acting as a vacuum, odors from floor drains without water-sealed traps can be drawn into the AHUs and distributed to occupied areas within the building.

Of note is the existence of a floor drain in the indoor garage area. Garage floor drains also tend to dry due to lack of water running into the drain. Since the garage does not have mechanical exhaust vents, the operation of prisoner transportation vans can result in vehicle exhaust penetrating into the floor drain. Once in the drain system, vehicle exhaust can migrate up the floor drain system to the south AHU room floor drain. Following this, vehicle exhaust can be drawn into the AHUs through the condensation drains and be distributed into occupied areas serviced by the AHUs. Vehicle exhaust also contains carbon monoxide.

Subsequent to this assessment, Mr. Sherrin reported an incident that appeared to confirm the garage floor drain/AHU pathway. Reportedly, a building janitor poured an odorous cleaning

product into the garage floor drain. The odor of the cleaning product promptly filled the occupied areas of the building. If cleaning product odors can be distributed into occupied areas in the building by this pathway, carbon monoxide entering into the garage floor drain system can also enter the building.

In each of these cases, pathways for carbon monoxide entrainment exist in this building. In order to prevent carbon monoxide penetration, the following recommendations should be considered:

1. Seal the floor drain in the garage.
2. Ensure water is poured into the AHU floor drains every other day to maintain the integrity of the traps.
3. Seal the condensation drains for AHUs during the heating season. Please note that these drains must be unsealed during the air-conditioning season in odor to drain condensation. Failure to remove condensation drains seals can result in water back up into AHUs and produce mold growth.
4. Seal holes around utility pipes in the ceiling of the garage. Render wall seams or other breaches in the walls and ceiling airtight.
5. Consider extending the height of the chimney several feet above the top height of the AHU fresh air intake that is northeast of the chimney.
6. Consider installing exhaust ventilation for the garage.

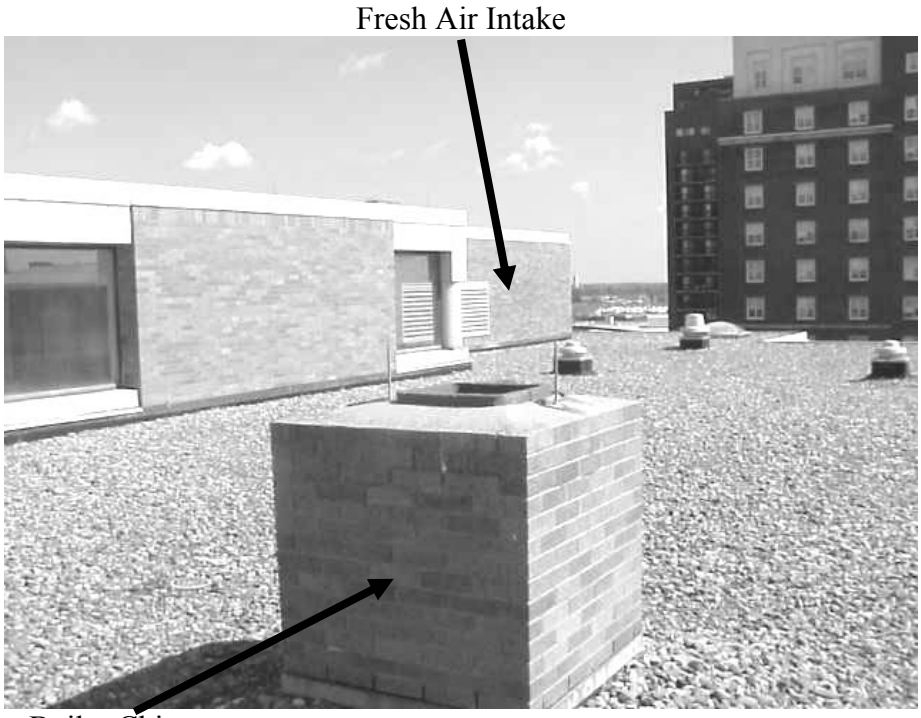
We believe that the indoor air quality within this building can be improved with the implementation of these recommendations. We hope you find this information helpful. If you are in need of further information or help, please feel free to contact Michael Feeney or me at (617) 624-5757.

Sincerely,

Suzanne K. Condon, Director
Bureau of Environmental Health Assessment

cc: Mike Feeney, Chief, Emergency Response/Indoor Air Quality, BEHA
Lynne G. Reed, Executive Director, Administrative Office of the Trial Court
Stephen J. Carroll, Director of Court Facilities
Joanna Rugnetta, Health and Safety Liaison
Hon. Rosemary Minehan, Acting Presiding Judge, Bristol County 3rd District Court
Senator Mark C. Montigny
Representative Antonio F. D. Cabral
Representative Robert M. Koczera
Representative George Rogers

Picture 1



Boiler Chimney Southwest of Fresh Air Intake

Picture 2

AHU Drainpipes That Terminate over Floor Drain

TABLE 6
Carbon Monoxide Air Test Results
Bristol County 3rd District Court
March 29, 2000

Remarks	Carbon Monoxide *ppm
Outside (Background)	non-detectable
Switchboard	non-detectable
Court 1	non-detectable
Court 2	non-detectable
C112	non-detectable
C133	non-detectable
C125	non-detectable
Court 3	non-detectable
Clerk's Window	non-detectable
Clerk's Main Work Area	non-detectable
152	non-detectable
Vault	non-detectable
Small Claims	non-detectable
154	non-detectable
150	non-detectable
146	non-detectable
C107	non-detectable
Restraining Orders	non-detectable
103 south	non-detectable
103 north	non-detectable

*** ppm = parts per million parts of air**